

Claims:

1 1. A system for managing power in a wireless interface system that services
2 communications between a wirelessly enabled host and at least one user input device, comprising:
3 a wireless interface unit that wirelessly interfaces with the wirelessly enabled host;
4 a clock generator operable to generate first and second clock signals corresponding to first
5 and second operating states of the wireless interface unit;
6 a processing unit operably coupled to the wireless interface unit; and
7 a power management unit operably coupled to the wireless interface unit, the processing
8 unit, and the clock generator, wherein the power management unit controls the power consumption
9 of the wireless interface device by providing a first power level to the clock generator when the
10 wireless interface unit is in the first operating state and providing a second power level to the clock
11 generator when the wireless interface unit is in the second operating state.

1 2. The wireless interface device of claim 1, wherein:
2 the wireless interface unit comprises an analog module and a digital module; and
3 wherein during the first operating state the analog module is fully operational and during
4 the second operating state the analog module is in a reduced power mode and is not fully
5 operational.

1 3. The wireless interface unit according to claim 1, wherein the clock generator comprises first
2 and second oscillator modules, and wherein the first oscillator module is operational when the clock
3 generator is generating the first clock signal and wherein the second oscillator module is operational
4 when the clock generator is generating the second clock signal.

1 4. The wireless interface device of claim 1, further comprising processing unit voltage
2 regulation circuitry that couples the processing unit to a voltage source, wherein the power
3 management unit controls the operation of the processing unit voltage regulation circuitry to
4 controllably power the processing unit.

1 5. The wireless interface device of claim 1, wherein the wireless interface device enters one of
2 a plurality of power consumption operating states comprising:

3 busy mode in which all components of the wireless interface device are powered and
4 operational;

5 idle mode in which the wireless interface unit performs first power conserving operations;

6 suspend mode in which the wireless interface unit performs second power conserving
7 operations; and

8 power down mode in which the wireless interface unit and the processing unit are powered
9 down.

1 6. A system for managing power in a wireless interface system that services communications
2 between a wirelessly enabled host and at least one user input device, comprising:

3 a wireless interface unit that wirelessly interfaces with the wirelessly enabled host, wherein
4 the wireless interface unit comprises

5 an analog module including a transceiver unit,

6 a digital module further comprising:

7 transmitter operation detector operable to detect operation of the

8 transceiver unit, and
9 a voltage regulator control signal generator operable to generate a
10 voltage regulator reference control signal corresponding to the
11 operational status of the transceiver;
12 a clock generator operable to generate first and second clock signals corresponding to a
13 first operating state wherein the transceiver is operational and a second operating state wherein
14 the transceiver is turned off;
15 a processing unit operably coupled to the wireless interface unit; and
16 a power management unit operably coupled to the wireless interface unit, the processing
17 unit, and the clock generator, wherein the power management unit controls the power consumption
18 of the wireless interface device by providing a first power level to the clock generator when the
19 wireless interface unit is in the first operating state and providing a second power level to the clock
20 generator when the wireless interface unit is in the second operating state.

1 7. The wireless interface unit according to claim 6, wherein the clock generator comprises first
2 and second oscillator modules, and wherein the first oscillator module is operational when the clock
3 generator is generating the first clock signal and wherein the second oscillator module is operational
4 when the clock generator is generating the second clock signal

1 8. The wireless interface device of claim 7, during the first operating state the analog module
2 is fully operational and during the second operating state the analog module is in a reduced
3 power mode and is not fully operational.

1 9. The wireless interface device of claim 6, wherein the wireless interface device enters one of
2 a plurality of power consumption operating states comprising:

3 busy mode in which all components of the wireless interface device are powered and
4 operational;

5 idle mode in which the wireless interface unit performs first power conserving operations;

6 suspend mode in which the wireless interface unit performs second power conserving
7 operations; and

8 power down mode in which the wireless interface unit and the processing unit are powered
9 down.

1 10. The wireless interface device of claim 9, wherein in the idle mode the wireless interface unit
2 periodically communicates with the wirelessly enabled host.

1 11. The wireless interface device of claim 9 wherein in the suspend mode:
2 the wireless interface unit does not transmit to the wirelessly enabled host; and
3 the wireless interface unit listens to the transmissions of the wirelessly enabled host.

1 12. The wireless interface device of claim 11, wherein the power management unit powers
2 down the wireless interface unit and the processing unit after at least one inactivity period during
3 which the at least one user input device is inactive with respect to the input/output unit.

1 13. The wireless interface device of claim 6, wherein the user input device includes a cursor
2 control device.

1 14. The wireless interface device of claim 6, wherein the user input device includes a keypad.

1 15. The wireless interface device of claim 6, wherein the user input device includes:
2 a cursor control device; and
3 a keypad.

1 16. A method for managing power in a wireless interface unit, comprising:

2 generating first and second clock signals from a clock generator, said clock generator being
3 operable to generate the first clock signal when the wireless interface unit is in a first operating state
4 and operable to generate the second clock signal when the wireless interface unit is in a second
5 operating state;

6 providing the first clock signal to the wireless interface unit when the wireless interface unit
7 is in the first operating state;

8 providing the second clock signal to the wireless interface unit when the wireless interface
9 unit is in the second operating state; and

10 using a power management unit to control the clock generator by providing a first operating
11 voltage to cause the clock generator to generate the first clock signal and providing a second
12 operating voltage to cause the clock generator to generate the second clock signal.

1 17. The method of claim 16, wherein:

2 the wireless interface unit comprises an analog module and a digital module; and

3 wherein during the first operating state the analog module is fully operational and during
4 the second operating state the analog module is in a reduced power mode and is not fully
5 operational.

1 18. The method of claim 16, wherein the clock generator comprises first and second oscillator
2 modules, and wherein the first oscillator module is operational when the clock generator is

generating the first clock signal and wherein the second oscillator module is operational when the clock generator is generating the second clock signal.

19. The wireless interface device of claim 16, wherein the wireless interface device enters one of a plurality of power consumption operating states comprising:

busy mode in which all components of the wireless interface device are powered and operational;

idle mode in which the wireless interface unit performs first power conserving operations;

suspend mode in which the wireless interface unit performs second power conserving operations; and

power down mode in which the wireless interface unit and the processing unit are powered down.

20. An integrated circuit that services communications with a wirelessly enabled host and that services at least one user input device, the integrated circuit comprising:

a wireless interface unit that wirelessly interfaces with the wirelessly enabled host;

a clock generator operable to provide first and second clock signals to the wireless interface unit, wherein the first clock signal corresponds to a first operating state of the wireless interface unit and the second clock signal corresponds to a second operating state of the wireless interface unit;

a processing unit operably coupled to the wireless interface unit;

an input/output unit operably coupled to the wireless interface unit and to the processing unit, wherein the input/output unit also operably couples to the at least one user input device; and

a power management unit operably coupled to the wireless interface unit, the processing

unit, and the clock generator, wherein the power management unit controls the power consumption of the wireless interface device by providing a first power level to the clock generator when the wireless interface unit is in the first operating state and providing a second power level to the clock generator when the wireless interface unit is in the second operating state.

21. The integrated circuit of claim 20, wherein:

the wireless interface unit comprises an analog module and a digital module; and

wherein during the first operating state the analog module is fully operational and during the second operating state the analog module is in a reduced power mode and is not fully operational.

22. The integrated circuit of claim 20, wherein the clock generator comprises first and second oscillator modules, and wherein the first oscillator module is operational when the clock generator is generating the first clock signal and wherein the second oscillator module is operational when the clock generator is generating the second clock signal.

23. The integrated circuit of claim 20, wherein the wireless interface device enters one of a plurality of power consumption operating states comprising:

busy mode in which all components of the wireless interface device are powered and operational;

idle mode in which the wireless interface unit performs first power conserving operations;

suspend mode in which the wireless interface unit performs second power conserving operations; and

8 power down mode in which the wireless interface unit and the processing unit are powered
9 down.